**Deep-Object Removal**

(Machine Learning)

**Synopsis**

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**Acknowledgement**

It gives us a great sense of pleasure to present the synopsis of the

Mini Project (Deep-Object Removal) undertaken during Btech IIIrd Year, this project itself is going to be acknowledgement to the inspiration, drive and technical assistance will be contribute to it by many individuals.

We owe special debt of gratitude to Mr. Piyush vashistha (Assistant Professor Department of CEA) for providing us with an encouraging platform to develop this project which thus helped us in shaping our abilities towards a constructive goal and for his constant support and guidance to our work. His sincerity, Thoroughness and perseverance is being a constant source of inspiration for us. We believe that he will shower us with all his Extensively experienced ideas and insightful comments at different stages of the project & also taught us about the latest industry-oriented technologies.

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**Deep-Object Removal**

(Machine Learning)

Deep-Object Removal (Image inpainting) is the process of reconstructing missing parts of an image so that observers are unable to tell that these regions have undergone restoration. This technique is often used to remove unwanted objects from an image or to restore damaged portions of old photos.

Image inpainting is an ancient art that originally required human artists to do the work by hand. But today, researchers have proposed numerous automatic inpainting methods. In addition to the image, most of these methods also require as input a mask showing the regions that require inpainting.

**About the Project**

The field of automatic Deep-Object Removal (inpainting) has progressed rapidly in recent years, but no one has yet proposed a standard method of evaluating algorithms. This absence is due to the problem’s challenging nature: image-inpainting algorithms strive for realism in the resulting images, but realism is a subjective concept intrinsic to human perception. Existing objective image-quality metrics provide a poor approximation of what humans consider realistic.

To improve the situation and to better organize both prior and future research in this field, we conducted a subjective comparison of nine state-of-the-art inpainting algorithms and propose objective quality metrics that exhibit high correlation with the results of our comparison.

**Future Prospects**

The selection of patch shape affects the reconstruction of the images and hence an automatic selection based on the image contents could be extended in the future. Usage of non-rectangular patches for filling in the exemplar method could be explored. The exemplar-based methods involved exhaustive searching for the patch in the source area. Using intelligent algorithms to perform search efficiently could be another scope of future work. In the inpainting algorithms the area to be inpainted is identified by the user. Automatic identification of the inpainted area is an open problem which has its application in camouflaging and detection of fraudulent photo manipulations. Texel extraction for the general image if explored has a wide application in Content based image retrieval

**Requirements**

a) **Hardware Requirements(Minimum):**

i3 processor-based computer

4GB Ram

5 GB Hard Disk Space

B) **Software Requirements(Minimum):**

Windows 7

Python 3.7

Python Modules

1. OpenCV2
2. Pandas
3. Numpy
4. Tensorflow
5. Pytorch
6. Keras

**Technology Used:**

1. Computer Vision
2. Python & Machine Learning
3. Deep Learning